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<120> Nucleic Acid Sequences Encoding Isoflavone Synthase

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<150> 60/117,769
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<150> 60/144,783
<151> 1999-07-20

<150> 60/156,094
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<170> Microsoft Office 97

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<213> Glycine max

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<210> 2
<211> 521
<212> PRT
<213> Glycine max

<400> 2

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His Leu Arg Pro Thr Pro Ser Ala Lys Ser Lys Ala Leu Arg His Leu
20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Ser Phe Gly Ser Met Pro Thr
65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
85 90 95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
100 105 110

Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
115 120 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
130 135 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
145 150 155 160

Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp Val Thr
165 170 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
180 185 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
195 200 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys Tyr Leu
210 215 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225 230 235 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
245 250 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly Val Phe
260 265 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
275 280 285

Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
290 295 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
305 310 315 320

Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val Tyr Ser
325 330 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
340 345 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
355 360 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
370 375 380

Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp Gln Val
385 390 395 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
405 410 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp Leu
420 425 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
435 440 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
450 455 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465 470 475 480

Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
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Ile Gly Val Ala Ser Lys Leu Leu Ser
515 520

<210> 3
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligonucleotide

<400> 3
cgggatccat gcaaccggaa accgtcg 27

<210> 4
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligonucleotide

<400> 4
ccggaattct caccaaacat cacggaggta tc 32

<210> 5
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligonucleotide

<400> 5
tcaaggagaa aaaaccccgg atccatgttg ctggaacttg cacttgg 47

<210> 6
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Oligonucleotide

<400> 6
ggccagtgaa ttgtaatacg actcactata gggcg 35

<210> 7
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 7
aaaattagcc tcacaaaagc aaag 24

<210> 8
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 8
atataaggat tgatagttta tagtagg 27

<210> 9
<211> 1824
<212> DNA
<213> Glycine max

<400> 9
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ccttcatagg acaccttcat ctcttaaaag acaaacttct ccactacgca ctcatcgacc 240
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<210> 10
<211> 521
<212> PRT
<213> Glycine max

<400> 10

Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
1 5 10 15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
85 90 95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
100 105 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
115 120 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Pro Asn Ala Thr Thr
130 135 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Thr Arg Lys Phe Leu
145 150 155 160

Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
165 170 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
180 185 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
195 200 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
210 215 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225 230 235 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
245 250 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
260 265 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
275 280 285

Ile Thr Lys Asp His Ile Glu Gly Leu Val Val Asp Phe Phe Ser Ala
290 295 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
305 310 315 320

Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
325 330 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
340 345 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
355 360 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
370 375 380

Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
385 390 395 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
405 410 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp Leu
420 425 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
435 440 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
450 455 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465 470 475 480

Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
515 520

<210> 11
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 11
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<210> 12
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 12
ttaagaaagg agtttagatg caacg 25

<210> 13
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 13
tgtttctgca cttgcgtccc ac 22

<210> 14
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 14
ccgatccttg caagtggaac ac 22

<210> 15
<211> 1501
<212> DNA
<213> Medicago sativa

<400> 15
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g 1501

<210> 16
<211> 499
<212> PRT
<213> Medicago sativa

<400> 16
Phe Leu His Leu Arg Pro Thr Pro Ser Ala Lys Ser Lys Ala Leu Arg
1 5 10 15

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His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
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His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
        35                  40                  45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Ser Phe Gly Ser Met
    50                  55                  60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
65                  70                  75                  80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Thr
                85                  90                  95

Arg Arg Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro
            100                 105                 110

Tyr Trp Arg Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
        115                 120                 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
    130                 135                 140

Phe Leu Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp
145                 150                 155                 160

Val Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
                165                 170                 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
            180                 185                 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
        195                 200                 205

Tyr Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
    210                 215                 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Gly Ile
225                 230                 235                 240

Val Arg Arg Arg Glu Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly
                245                 250                 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
            260                 265                 270

Ile Lys Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Leu Phe
        275                 280                 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
    290                 295                 300

Glu Leu Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val
305                 310                 315                 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
                325                 330                 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
            340                 345                 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
        355                 360                 365
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Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp
    370                 375                 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
385                 390                 395                 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu
                405                 410                 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
            420                 425                 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
        435                 440                 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
    450                 455                 460

Gly Gln Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg
465                 470                 475                 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
                485                 490                 495

Ala Arg Ile
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<210> 17
<211> 1501
<212> DNA
<213> Vicia villosa

<400> 17

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<210> 18
<211> 499
<212> PRT
<213> Vicia villosa

<400> 18

Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
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His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
20 25 30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
35 40 45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
50 55 60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
65 70 75 80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
85 90 95

Arg Arg Leu Thr Tyr Asp Ser Leu Val Ala Met Val Pro Phe Gly Pro
100 105 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
115 120 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
130 135 140

Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
145 150 155 160

Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
165 170 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
180 185 190

Lys Ile Tyr Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
195 200 205

His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
210 215 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
225 230 235 240

Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly
245 250 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu
260 265 270

Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
275 280 285

Ser Ala Gly Ile Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
290 295 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
305 310 315 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu
405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
420 425 430

Gly Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
450 455 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
485 490 495

Ala Arg Ile

<210> 19
<211> 1501
<212> DNA
<213> Lens culinaris

<400> 19
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aacttctcca ctacgcactc atcgacctct ccaaaaaaca tggtcccttа ttctccctct 180
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aaacgcacga ggcaacttcc ttcaacacaa ggttccaaac ctcagccata agacgcctca 300
cctatgatag ctcagtggcc atggttccat tcggacctta ctggaagttc gtgaggaagc 360
tcatcatgaa cgaccttctc aacgccacca ccgtcaacaa gctcaggcct ttgaggaccc 420
aacagatccg caagttcctt agggttatgg cccaaagcgc agaggcccag aagccccttg 480
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tcactgactt catctggcct ttgaagtatc tcaaggttgg aaagtatgag aagaggattg 660
atgacatctt gaacaagttc gaccctgtcg ttgaaagggt catcaagaag cgccgtgaga 720
tcgtcagaag gagaaagaac ggagaagttg ttgagggcga ggccagcggc gtcttcctcg 780
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tctacagtgt tgtgggcaaa gatatactcg ttgacgaagt tgacactcaa aaccttcctt 1020
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tgctgggccc tcaaggacaa atattgaaag gtgatgatgc caaagttagc atggaagaga 1440
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g 1501

<210> 20
<211> 499

<212> PRT
<213> Lens culinaris

<400> 20

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Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
  1               5                  10                  15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
            20                  25                  30

His Pro His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
        35                  40                  45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
    50                  55                  60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
65                  70                  75                  80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
                85                  90                  95

Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro
            100                 105                 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
        115                 120                 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
    130                 135                 140

Phe Leu Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp
145                 150                 155                 160

Val Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
                165                 170                 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
            180                 185                 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
        195                 200                 205

Tyr Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
    210                 215                 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
225                 230                 235                 240

Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly
                245                 250                 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
            260                 265                 270

Ile Lys Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe
        275                 280                 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
    290                 295                 300

Glu Leu Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val
305                 310                 315                 320

Tyr Ser Val Val Gly Lys Asp Ile Leu Val Asp Glu Val Asp Thr Gln
                325                 330                 335
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Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
355 360 365

Asn Gly His Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp
370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu
405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
450 455 460

Gly Gln Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg
465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
485 490 495

Ala Arg Ile

<210> 21
<211> 1501
<212> DNA
<213> Lens culinaris

<400> 21
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aacttctcca ctacgcactc atcgacctct ccaaaaaaca tggtccctta ttctctctct 180
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cctatgatag ctcagtggcc atggttccct tcggacctta ctggaagttc gtgaggaagc 360
tcatcatgaa cgaccttctc aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc 420
aacagatccg caagttcctt agggttatgg cccaaggcgc agaggcacag aagccccttg 480
acttgaccga ggagcttctg aaatggacca acagcaccat ctccatgatg gtgctcggcg 540
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tcactgactt catctggcca ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg 660
acgacatctt gaacaagttc gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga 720
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tctacagtgt tgtgggaaag gacagacttg tggacgaagt tgacactcaa aaccttcctt 1020
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gtcctgagag gttcctagag acaggggctg aaggggaagc aaggcctctt gatcttaggg 1260
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tgctgggtcc acaaggacag atattgaagg gtggtgacgc caaagttagc atggaagaga 1440
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g 1501

<210> 22
<211> 499
<212> PRT
<213> Lens culinaris

<400> 22

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Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
  1               5                  10                  15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
             20                  25                  30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
         35                  40                  45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
     50                  55                  60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
 65                  70                  75                  80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
                 85                  90                  95

Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro
            100                 105                 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
        115                 120                 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
    130                 135                 140

Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
145                 150                 155                 160

Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
                165                 170                 175

Val Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
            180                 185                 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
        195                 200                 205

His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
    210                 215                 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
225                 230                 235                 240

Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly
                245                 250                 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
            260                 265                 270

Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
        275                 280                 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
    290                 295                 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
305                 310                 315                 320
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Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
                325                 330                 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
            340                 345                 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
        355                 360                 365

Asn Gly Cys Val Thr Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
    370                 375                 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
385                 390                 395                 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu
                405                 410                 415

Asp Leu Arg Gly Arg His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
            420                 425                 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
        435                 440                 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
    450                 455                 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
465                 470                 475                 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
                485                 490                 495

Ala Arg Ile
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<210> 23
<211> 1566
<212> DNA
<213> Phaseolus aureus

<400> 23

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cgtcttccct tcataggaca ccttcatctc ttaaaagaca aacttctcca ctacgcactc  180
atcgacctct ccaaaaaaca tggtccctta ttctctctct actttggctc catgccaacc  240
gttgttgcct ccacaccaga attgttcaag ctcttcctcc aaacgcacga ggcaacttcc  300
ttcaacacaa ggttccaaac ctcagccata agacgcctca cctatgatag ctcagtggcc  360
atggttccct tcggacctta ctggaagttc gtgaggaagc tcatcatgaa cgaccttctc  420
aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc aacagatccg caagttcctt  480
agggttatgg cccaaggcgc agaggcacag aagccccttg acttgaccga ggagcttctg  540
aaatggacca acagcaccat ctccatgatg atgctcggcg aggctgagga gatcagagac  600
atcgctcgcg aggttcttaa gatctttggc gaatacagcc tcactgactt catctggcca  660
ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg acgacatctt gaacaagttc  720
gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga tcgtgaggag gagaaagaac  780
ggagaggttg ttgagggtga ggtcagcggg gttttccttg acactttgct tgaattcgct  840
gaggatgaga ccatggagat caaaatcacc aaggaccaca tcaagggtct tgttgtcgac  900
tttttctcgg caggaacaga ctccacagcg gtggcaacag agtgggcatt ggcagaactc  960
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gacagacttg tggacgaagt tgacactcaa aaccttcctt acattagagc aatcgtgaag 1080
gagacattcc gcatgcaccc gccactccca gtggtcaaaa gaaagtgcac agaagagtgt 1140
gagattaatg gatatgtgat cccagaggga gcattgattc tcttcaatgt atggcaagta 1200
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ccatttgggt ctgggaggag aatgtgccct ggagtcaatc tggctacttc gggaatggca 1380
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acacttctcg catctcttat tcagtgcttt gacttgcaag tgctgggtcc acaaggacag 1440
atattgaagg gtggtgacgc caaagttagc atggaagaga gagccggcct cactgttcca 1500
agggcacata gtcttgtctg tgttccactt gcaaggatcg gcgttgcatc taaactcctt 1560
tctaaa 1566

<210> 24
<211> 522
<212> PRT
<213> Phaseolus aureus

<400> 24
Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
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His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
85 90 95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
100 105 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
115 120 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
130 135 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
145 150 155 160

Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
165 170 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
180 185 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
195 200 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
210 215 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225 230 235 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
245 250 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
260 265 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
275 280 285

```
Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
    290                 295                 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
305                 310                 315                 320

Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Ala Tyr Ser
                325                 330                 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
            340                 345                 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
        355                 360                 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
    370                 375                 380

Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
385                 390                 395                 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
                405                 410                 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
            420                 425                 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
        435                 440                 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
    450                 455                 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465                 470                 475                 480

Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
                485                 490                 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
            500                 505                 510

Ile Gly Val Ala Ser Lys Leu Leu Ser Lys
        515                 520
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<210> 25
<211> 1566
<212> DNA
<213> Phaseolus aureus

<400> 25

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cgtcttccct tcataggaca ccttcatctc ttaaaagaca aacttctcca ctacgcgctc  180
atcgacctct ccaaaaaaca tggtcccttа ttctctctct actttggctc catgccaacc  240
gttgttgcct ccacaccaga attgttcaag ctcttcctcc aaacgcacga ggcaacttcc  300
ttcaacacaa ggttccaaac ctcagccata agacgcctca cctatgatag ctcagtggcc  360
atggttccct tcggacctta ctggaagttc gtgaggaagc tcatcatgaa cgaccttctc  420
aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc aacagatccg caagttcctt  480
agggctatgg cccaaggcgc agaggcacag aagccccttg acttgaccga ggagcttctg  540
aaatggacca acagcaccat ctccatgatg atgctcggcg aggctgagga gatcagagac  600
atcgctcgcg aggttcttaa gatctttggc gaatacagcc tcactgactt catctggcca  660
ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg acgacatctt gaacaagttc  720
gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga tcgtgaggag gagaaagaac  780
ggagaggttg ttgagggtga ggtcagcggg gttttccttg acactttgct tgaattcgct  840
gaggatgaga ccatggagat caaaatcacc aaggaccaca tcaagggtct tgttgtcgac  900
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ttttctcgg caggaacaga ctccacagcg gtggcaacag agtgggcatt ggcagaactc  960
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<210> 26
<211> 521
<212> PRT
<213> Phaseolus aureus

<400> 26

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Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
  1               5                  10                  15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
            20                  25                  30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
        35                  40                  45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
    50                  55                  60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
65                  70                  75                  80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
                85                  90                  95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
            100                 105                 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
        115                 120                 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
    130                 135                 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
145                 150                 155                 160

Arg Ala Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
                165                 170                 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
            180                 185                 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
        195                 200                 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
    210                 215                 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225                 230                 235                 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
                245                 250                 255
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Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
            260                 265                 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
        275                 280                 285

Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
    290                 295                 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
305                 310                 315                 320

Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
                325                 330                 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
            340                 345                 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
        355                 360                 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
    370                 375                 380

Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
385                 390                 395                 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
                405                 410                 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
            420                 425                 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
        435                 440                 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
    450                 455                 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465                 470                 475                 480

Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
                485                 490                 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
            500                 505                 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
        515                 520
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<210> 27
<211> 1566
<212> DNA
<213> Phaseolus aureus

<400> 27

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cgtcttccct tcataggaca ccttcatctc ttaaaagaca aacttctcca ctacgcactc  180
atcgacctct ccaaaaaaca tggtccctta ttctctctct actttggctc catgccaacc  240
gttgttgcct ccacaccaga attgttcaag ctcttcctcc aaacgcacga ggcaacttcc  300
ttcaacacaa ggttccaaac ctcagccata agacgcctca cctatgatag ctcagtggcc  360
atggttccct tcggacctta ctggaagttc gtgaggaagc tcatcatgaa cgaccttctc  420
aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc aacagatccg caagttcctt  480
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atcgctcgcg aggttcttaa gatctttggc gaatacagcc tcactgactt catctggcca  660
ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg acgacatctt gaacaagttc  720
gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga tcgtgaggag gagaaagaac  780
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ccatttgggt ctgggaggag aatgtgccct ggagtcaatc tggctacttc gggaatggca 1380
acacttcttg catctcttat tcagtgcttt gacttgcaag tgctgggtcc acaaggacag 1440
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tcttaa                                                            1566
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<210> 28
<211> 521
<212> PRT
<213> Phaseolus aureus

<400> 28

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  1               5                  10                  15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
             20                  25                  30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
         35                  40                  45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
     50                  55                  60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
 65                  70                  75                  80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
                 85                  90                  95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
            100                 105                 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
        115                 120                 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
    130                 135                 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
145                 150                 155                 160

Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
                165                 170                 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
            180                 185                 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
        195                 200                 205
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Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
    210                 215                 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225                 230                 235                 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
                245                 250                 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
            260                 265                 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu Ile Lys
        275                 280                 285

Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
    290                 295                 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
305                 310                 315                 320

Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
                325                 330                 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
            340                 345                 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
        355                 360                 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
    370                 375                 380

Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
385                 390                 395                 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
                405                 410                 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
            420                 425                 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
        435                 440                 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
    450                 455                 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465                 470                 475                 480

Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
                485                 490                 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
            500                 505                 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
        515                 520
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<210> 29
<211> 1566
<212> DNA
<213> Phaseolus aureus

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cgtcttccct tcataggaca ccttcatctc ttaaaagaca aacttctcca ctacgcactc 180
atcgacctct ccaaaaaaca tggtccctta ttctctctct actttggctc catgccaacc 240
gttgttgcct ccacaccaga attgttcaag ctcttcctcc aaacgcacga ggcaacttcc 300
ttcaacacaa ggttccaaac ctcagccata agacgcctca cctatgatag ctcagtggcc 360
atggttccct tcggacctta ctggaagttc gtgaggaagc tcatcatgaa cgaccttctc 420
aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc aacagatccg caagttcctt 480
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aaatggacca acagcaccat ctccatgatg atgctcggcg aggctgagga gatcagagac 600
atcgctcgcg aggttcttaa gatctttggc gaatacagcc tcactgactt catctggcca 660
ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg acgacatctt gaacaagttc 720
gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga tcgtgaggag gagaaagaac 780
ggagaggttg ttgagggtga ggtcagcggg gttttccttg acactttgct tgaattcgct 840
gaggatgaga ccatggagat caaaatcacc aaggaccaca tcaagggtct tgttgtcgac 900
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gagacattcc gcatgcaccc gccactccca gtggtcaaaa gaaagtgcac agaagagtgt 1140
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tcttaa 1566

<210> 30
<211> 521
<212> PRT
<213> Phaseolus aureus

<400> 30
Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
1 5 10 15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
85 90 95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
100 105 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
115 120 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
130 135 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
145 150 155 160

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Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
                165                 170                 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
            180                 185                 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
        195                 200                 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
    210                 215                 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225                 230                 235                 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
                245                 250                 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
            260                 265                 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
        275                 280                 285

Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
    290                 295                 300

Gly Thr Asp Ser Thr Ala Glu Ala Thr Glu Trp Ala Leu Ala Glu Leu
305                 310                 315                 320

Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
                325                 330                 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
            340                 345                 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
        355                 360                 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
    370                 375                 380

Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
385                 390                 395                 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
                405                 410                 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
            420                 425                 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
        435                 440                 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
    450                 455                 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465                 470                 475                 480

Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
                485                 490                 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
            500                 505                 510
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Ile Gly Val Ala Ser Lys Leu Leu Ser
515 520

<210> 31
<211> 1566
<212> DNA
<213> Trifolium pratense

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cgtcttccct tcataggaca ccttcatctc ttaaaagaca aacttctcca ctacgcactc 180
atcgacctct ccaaaaaaca tggtccctta ttctctctct actttggctc catgccaacc 240
gttgttgcct ccacaccaga attgttcaag ctcttcctcc aaacgcacga ggcaacttcc 300
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atcgctcgcg aggttcttaa gatctttggc gaatacagcc tcactgactt catctggcca 660
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acacttcttg catctcttat tcagtgcttt gacttgcaag tgctgggtcc acaaggacag 1440
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tcttaa 1566

<210> 32
<211> 521
<212> PRT
<213> Trifolium pratense

<400> 32
Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
1 5 10 15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
85 90 95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
100 105 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Ile Gly Pro Tyr Trp
115 120 125

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Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
    130                 135                 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
145                 150                 155                 160

Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
                165                 170                 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
            180                 185                 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
        195                 200                 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
    210                 215                 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225                 230                 235                 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
                245                 250                 255

Arg Arg Lys Asn Gly Glu Val Asp Glu Gly Glu Val Ser Gly Val Phe
            260                 265                 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu Ile Lys
        275                 280                 285

Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
    290                 295                 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
305                 310                 315                 320

Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
                325                 330                 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
            340                 345                 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
        355                 360                 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
    370                 375                 380

Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
385                 390                 395                 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
                405                 410                 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
            420                 425                 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
        435                 440                 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
    450                 455                 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465                 470                 475                 480
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Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
515 520

<210> 33
<211> 1566
<212> DNA
<213> Trifolium pratense

<400> 33
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cgtcttccct tcataggaca ccttcatctc ttaaaagaca aacttctcca ctacgcactc 180
atcgacctct ccaaaaaaca tggtccctta ttctctctct actttggctc catgccaacc 240
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ttcaacacaa ggttccaaac ctcagccata agacgcctca cctatgatag ctcagtggcc 360
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gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga tcgtgaggag gagaaagaac 780
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gagattaatg gatatgtgat cccagaggga gcattgattc tcttcaatgt atggcaagta 1200
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tcttaa 1566

<210> 34
<211> 521
<212> PRT
<213> Trifolium pratense

<400> 34
Met Leu Leu Glu Leu Ala Leu Gly Leu Leu Val Leu Ala Leu Phe Leu
1 5 10 15

His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg His Leu
20 25 30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
35 40 45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
50 55 60

Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met Pro Thr
65 70 75 80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr His
85 90 95

Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg Arg
100 105 110

Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
115 120 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
130 135 140

Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
145 150 155 160

Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr
165 170 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
180 185 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
195 200 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His Leu
210 215 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225 230 235 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
245 250 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val Phe
260 265 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu Ile Lys
275 280 285

Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
290 295 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
305 310 315 320

Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr Ser
325 330 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
340 345 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
355 360 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
370 375 380

Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp Gln Val
385 390 395 400

Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
405 410 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp Leu
420 425 430

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Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
        435                 440                 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
    450                 455                 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465                 470                 475                 480

Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
                485                 490                 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
            500                 505                 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
        515                 520
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<210> 35
<211> 1563
<212> DNA
<213> Pisum sativum

<400> 35

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cgtcttccct tcattggcca ccttcacctc ttaaaagata aacttctcca ctatgcactc  180
atcgatctct ccaaaaagca tggcccctta ttctctctct ccttcggctc catgccaacc  240
gtcgttgcct ccacccctga gttgttcaag ctcttcctcc aagcccacga ggcaacttcc  300
ttcagcacaa ggttccaaac ctctgccgta agacgcctca cttacgacaa ctctgtggcc  360
atggttccat tcggacctta ctggaagttc gtgaggaagc tcatcatgaa cgaccttctc  420
aacgccacca ccgtcaacga gctcaggcct ttgaggaccc aacagatccg caagttcctt  480
agggttatgg cccaaagcgc agaggcccag aagccccttg acgtcaccga ggagcttctc  540
aaatggacca acagcaccat ctccatgatg atgctcggcg aggctgagga gatcagagac  600
atcgctcgcg aggtccttaa gatcttcggc gaatacagcc tcactgactt catctggcct  660
ttgaagtatc tcaaggttgg aaagtatgag aagaggattg atgacatctt gaacaagttc  720
gaccctgtcg ttgaaagggt catcaagaag cgccgtgaga tcgtcagaag gagaaagaac  780
ggagaagttg ttgagggcga ggccagcggc gtcttcctcg acactttgct tgaattcgct  840
gaggacgaga ccatggagat caaaattacc aaggagcaaa tcaagggcct tgttgtcgac  900
tttttctctg cagggacaga ttccacagcg gtggcaacag agtgggcatt ggcagagctc  960
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gagacattcc gaatgcaccc accactccca gtggtcaaaa gaaagtgcac agaagagtgt 1140
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tct                                                               1563
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<210> 36
<211> 521
<212> PRT
<213> Pisum sativum

<400> 36

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Met Leu Leu Glu Leu Ala Leu Gly Leu Phe Val Leu Ala Leu Phe Leu
  1               5                  10                  15

His Leu Arg Pro Thr Pro Ser Ala Lys Ser Lys Ala Leu Arg His Leu
            20                  25                  30

Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu
        35                  40                  45
```

```
His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu Ser
 50                  55                  60

Lys Lys His Gly Pro Leu Phe Ser Leu Ser Phe Gly Ser Met Pro Thr
65                  70                  75                  80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Ala His
                85                  90                  95

Glu Ala Thr Ser Phe Ser Thr Arg Phe Gln Thr Ser Ala Val Arg Arg
            100                 105                 110

Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro Tyr Trp
        115                 120                 125

Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
    130                 135                 140

Val Asn Glu Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe Leu
145                 150                 155                 160

Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp Val Thr
                165                 170                 175

Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu
            180                 185                 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
        195                 200                 205

Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys Tyr Leu
    210                 215                 220

Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225                 230                 235                 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val Arg
                245                 250                 255

Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly Val Phe
            260                 265                 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile Lys
        275                 280                 285

Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe Ser Ala
    290                 295                 300

Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu Leu
305                 310                 315                 320

Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val Tyr Ser
                325                 330                 335

Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn Leu
            340                 345                 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
        355                 360                 365

Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn Gly
    370                 375                 380

Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp Gln Val
385                 390                 395                 400
```

Gly Lys Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro Glu
405 410 415

Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp Leu
420 425 430

Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg Met
435 440 445

Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu Leu Ala
450 455 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465 470 475 480

Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
515 520

<210> 37
<211> 1496
<212> DNA
<213> Trifolium repens

<400> 37
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ccaagcccaa ggcctcgtct tcccttcatt ggccaccttc acctcttaaa agataaactt 120
ctccactatg cacccatcga tctctccaaa aagcatggcc ccttattctc tctctccttc 180
ggctccatgc caaccgtcgt tgcctccacc cctgagttgt tcaagctctt cctccaaacc 240
cacgaggcaa cttccttcaa cacaaggttc caaacctctg ccataagaca cctcacttac 300
gacaactctg tggccatggt tccattcgga ccttactgga agttcgtgag gaagctcatc 360
atgaacgacc ttctcaacgc caccaccgtc aacaagctca ggcctttgag gacccaacag 420
atccgcaagt tccttagggt tatggcccaa agcgcagagg cccagaagcc ccttgacgtc 480
accgaggagc ttctcaaatg gaccaacagc accatctcca tgatgatgct cggcgaggct 540
gaggagatca gagacatcgc tcgcgaggtt cttaagatct tcggcgaata cagcctcact 600
gacttcatct ggcctttgaa gtacctcaag gttggaaagt atgagaagag gattgatgac 660
atcttgaaca agttcgaccc tgtcgttgaa agggtcatca agaagcgccg tgagatcgtc 720
agaaggagaa agaacggaga agttgttgag ggcgaggcca gcggcgtctt cctcgacact 780
ttgcttgaat tcgctgagga cgagaccatg gagatcaaaa ttaccaagga gcaaatcaag 840
ggccttgttg tcgacttttt ctctgcaggg acagattcca cagcggtggt aacagagtgg 900
gcattggcag agctcatcaa caatcccagg gtgttgcaaa aggctcgtga ggaggtctac 960
agtgttgtgg gcaaagatag actcgttgac gaagttgaca ctcaaaacct tccttacatt 1020
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tgcacagaag agtgtgagat taatgggtat gtgatcccag agggagcatt ggttcttttc 1140
aatgtttggc aagtaggaag ggaccccaaa tactgggaca gaccatcaga atcccgtccc 1200
gagaggttct tagaaactgg tgctgaaggg gaagcagggc ctcttgatct taggggccag 1260
catttccaac tcctcccatt tgggtctggg aggagaatgt gccctggtgt cagtttggct 1320
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ggccctcaag gacaaatatt gaaaggtgat gatgccaaag ttagcatgga agagagagct 1440
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<210> 38
<211> 498
<212> PRT
<213> Trifolium repens

<400> 38
Ser His Leu Arg Pro Thr Pro Ser Ala Ile Ser Lys Ala Leu Arg His
1 5 10 15

Leu Pro Asn Pro Pro Ser Pro Arg Pro Arg Leu Pro Phe Ile Gly His
20 25 30

Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Pro Ile Asp Leu
35 40 45

Ser Lys Lys His Gly Pro Leu Phe Ser Leu Ser Phe Gly Ser Met Pro
50 55 60

Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr
65 70 75 80

His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg
85 90 95

His Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro Tyr
100 105 110

Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr
115 120 125

Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe
130 135 140

Leu Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp Val
145 150 155 160

Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met
165 170 175

Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys
180 185 190

Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys Tyr
195 200 205

Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys
210 215 220

Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val
225 230 235 240

Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly Val
245 250 255

Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile
260 265 270

Lys Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe Ser
275 280 285

Ala Gly Thr Asp Ser Thr Ala Val Val Thr Glu Trp Ala Leu Ala Glu
290 295 300

Leu Ile Asn Asn Pro Arg Val Leu Gln Lys Ala Arg Glu Glu Val Tyr
305 310 315 320

Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn
325 330 335

Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro
340 345 350

Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn
355 360 365

```
Gly Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp Gln
    370                 375                 380

Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Ser Arg Pro
385                 390                 395                 400

Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp
                405                 410                 415

Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg
            420                 425                 430

Met Cys Pro Gly Val Ser Leu Ala Thr Ser Gly Met Ala Thr Leu Leu
        435                 440                 445

Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly
    450                 455                 460

Gln Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg Ala
465                 470                 475                 480

Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala
                485                 490                 495

Arg Ile
```


<210> 39
<211> 1501
<212> DNA
<213> Trifolium repens

<400> 39

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acccaccaag cccaaagcct cgtcttccct tcataggaca ccttcatctc ttaaaagaca  120
aacttctcca ctacgcactc atcgacctct ccaaaaaaca tggtccctta ttctctctct  180
actttggctc catgccaacc gttgttgcct ccacaccaga attgttcaag ctcttcctcc  240
aaacgcacga ggcaacttcc ttcaacacaa ggttccaaac ctcagccata agacgcctca  300
cctacgacaa ctctgtggcc atggttccat tcggacctta ctggaagttc gtgaggaagc  360
tcatcatgaa cgaccttctc aacgccacca ccgtcaacaa gctcaggcct ttgaggaccc  420
aacagatccg caagttcctt agggttatgg cccaaagcgc agaggcccag aagccccttg  480
acgtcaccga ggagcttctc aaatggacca acagcaccat ctccatgatg atgctcggcg  540
aggctgagga gatcagagac atcgctcgcg aggttcttaa gatcttcggc gaatacagcc  600
tcactgactt catctggcct ttgaagtatc tcaaggttgg aaagtatgag aagaggattg  660
atgacatctt gaacaagttc gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga  720
tcgtcagaag gagaaagaac ggagaagttg ttgagggcga ggccagcggc gtcttcctcg  780
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agtgggcatt ggcagagctc atcaacaatc ccaaggtgtt gcaaaaggct cgtgaggagg  960
cctacagtgt tgtgggcaaa gatagactcg ttgacgaagt tgacactcaa aaccttcctt 1020
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gtcccgagag gttcttagaa actggtgctg aaggggaagc agggcctctt gatcttaggg 1260
gccagcattt ccaactcctc ccatttgggt ctgggaggag aatgtgccct ggtgtcaatt 1320
tggctacttc aggaatggca acacttcttg catctcttat ccaatgcttt gacctgcaag 1380
tgctgggccc tcaaggacaa atattgaaag gtgatgatgc caaagttagc atggaagaga 1440
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g                                                                   1501
```

<210> 40
<211> 499
<212> PRT
<213> Trifolium repens

<400> 40

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Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
 1               5                  10                  15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
            20                  25                  30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
        35                  40                  45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
    50                  55                  60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
65                  70                  75                  80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
                85                  90                  95

Arg Arg Leu Thr Tyr Asp Asn Ser Val Ala Met Val Pro Phe Gly Pro
            100                 105                 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
        115                 120                 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
    130                 135                 140

Phe Leu Arg Val Met Ala Gln Ser Ala Glu Ala Gln Lys Pro Leu Asp
145                 150                 155                 160

Val Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
                165                 170                 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
            180                 185                 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
        195                 200                 205

Tyr Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
    210                 215                 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
225                 230                 235                 240

Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Ala Ser Gly
                245                 250                 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
            260                 265                 270

Ile Lys Ile Thr Lys Glu Gln Ile Lys Gly Leu Val Val Asp Phe Phe
        275                 280                 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
    290                 295                 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Gln Lys Ala Arg Glu Glu Ala
305                 310                 315                 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
                325                 330                 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
            340                 345                 350
```

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Gly Ile
355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Val Leu Phe Asn Val Trp
370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu
405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
450 455 460

Gly Gln Ile Leu Lys Gly Asp Asp Ala Lys Val Ser Met Glu Glu Arg
465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
485 490 495

Ala Arg Ile

<210> 41
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 41
ttgctggaac ttgcacttgg t 21

<210> 42
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 42
gtatatgatg ggtaccttaa ttaagaaagg ag 32

<210> 43
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 43
gacgcctcac ttacgacaac tctgtg 26

<210> 44
<211> 25

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 44
cctctcggga cggaattctg atggt 25

<210> 45
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 45
gcggtgcacg ggcggactct tcttc 25

<210> 46
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 46
cgcccaatac gcaaaccgcc tctcc 25

<210> 47
<211> 1501
<212> DNA
<213> Beta vulgaris

<400> 47
tgtttctgca cttgcgtccc acacccactg caaaatcaaa agcacttcgc catctcccaa 60
acccaccaag cccaaagcct cgtcttccct tcataggaca ccttcatctc ttaaaagaca 120
aacttctcca ctacgcactc atcgacctct ccaaaaaaca tggtcccttа ttctctctct 180
actttggctc catgccaacc gttgttgcct ccacaccaga attgttcaag ctcttcctcc 240
aaacgcacga ggcaacttcc ttcaacacaa ggttccaaac ctcagccata agacgcctca 300
cctatgatag ctcagtggcc atggttccct tcggacctta ctggaagttc gtgaggaagc 360
tcatcatgaa cgaccttctc aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc 420
aacagatccg caagttcctt agggttatgg cccaaggcgc agaggcacag aagccccttg 480
acttgaccga ggagcttctg aaatggacca acagcaccat ctccatgatg atgctcggcg 540
aggctgagga gatcagagac atcgctcgcg aggttcttaa gatctttggc gaatacagcc 600
tcactgactt catctggcca ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg 660
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tcgtgaggag gagaaagaac ggagaggatg ttgagggtga ggtcagcggg gttttccttg 780
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agtgggcatt ggcagaactc atcaacaatc ctaaggtgtt ggaaaaggct cgtgaggagg 960
tctacagtgt tgtgggaaag gacagacttg tggacgaagt agacactcaa aaccttcctt 1020
acattagagc aatcgtgaag gagacattcc gcatgcaccc gccactccca gtggtcaaaa 1080
gaaagtgcat agaagagtgt gagattaatg gatatgtgat cccagaggga gcattgattc 1140
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gtcctgagag gttcctagag acaggggctg aaggggaagc aaggcttctt gatcttaggg 1260
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tggctacttc gggaatggca acacttcttg catctcttat tcagtgcttt gacttgcaag 1380
tgctgggtcc acaaggacag atattgaagg gtggtgacgc caaagttagc atggaagaga 1440
gagccggcct cactgttcca agggcacata gtcttgtctg tgttccactt gcaaggatcg 1500
g 1501

<210> 48
<211> 499

<212> PRT
<213> Beta vulgaris

<400> 48

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Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
  1               5                  10                  15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
            20                  25                  30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
        35                  40                  45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
    50                  55                  60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
65                  70                  75                  80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
                85                  90                  95

Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro
            100                 105                 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
        115                 120                 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
    130                 135                 140

Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
145                 150                 155                 160

Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
                165                 170                 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
            180                 185                 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
        195                 200                 205

His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
    210                 215                 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
225                 230                 235                 240

Val Arg Arg Arg Lys Asn Gly Glu Asp Val Glu Gly Glu Val Ser Gly
                245                 250                 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
            260                 265                 270

Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
        275                 280                 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
    290                 295                 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
305                 310                 315                 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
                325                 330                 335
```

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Ile Glu Glu Cys Glu Ile
355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
370 375 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
385 390 395 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Leu Leu
405 410 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
420 425 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
435 440 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
450 455 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
465 470 475 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
485 490 495

Ala Arg Ile

<210> 49
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 49
gaattcgcgg ccgctctaga actagtggat 30

<210> 50
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 50
gaattcgcgg ccgcgaattg ggtaccgggc 30

<210> 51
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:PCR primer

<400> 51
gcaaacgaag acaaatggga gatgata 27

<210> 52
<211> 1801
<212> DNA
<213> Glycine max

<220>
<221> intron
<222> (895)..(1112)

<400> 52
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cttcccttca ttggccacct tcacctctta aaagataaac ttctccacta tgcactcatc 180
gatctctcca aaaagcatgg ccccttattc tctctctcct tcggctccat gccaaccgtc 240
gttgcctcca cccctgagtt gttcaagctc ttcctccaaa cccacgaggc aacttccttc 300
aacacaaggt tccaaacctc tgccataaga cgcctcactt acgacaactc tgtggccatg 360
gttccattcg gaccttactg gaagttcgtg aggaagctca tcatgaacga ccttctcaac 420
gccaccaccg tcaacaagct caggcctttg aggacccaac agatccgcaa gttccttagg 480
gttatggccc aaagcgcaga ggcccagaag ccccttgacg tcaccgagga gcttctcaaa 540
tggaccaaca gcaccatctc catgatgatg ctcggcgagg ctgaggagat cagagacatc 600
gctcgcgagg ttcttaagat cttcggcgaa tacagcctca ctgacttcat ctggcctttg 660
aagtatctca aggttggaaa gtatgagaag aggattgatg acatcttgaa caagttcgac 720
cctgtcgttg aaagggtcat caagaagcgc cgtgagatcg tcagaaggag aaagaacgga 780
gaagttgttg agggcgaggc cagcggcgtc ttcctcgaca ctttgcttga attcgctgag 840
gacgagacca tggagatcaa aattaccaag gagcaaatca agggccttgt tgtcgtaagt 900
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aaactaatta attctcaatt ttgggtatgt aggacttttt ctctgcaggg acagattcca 1140
cagcggtggc aacagagtgg gcattggcag agctcatcaa caatcccagg gtgttgcaaa 1200
aggctcgtga ggaggtctac agtgttgtgg gcaaagatag actcgttgac gaagttgaca 1260
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gaccatcaga attccgtccc gagaggttct tagaaactgg tgctgaaggg gaagcagggc 1500
ctcttgatct taggggccag catttccaac tcctcccatt tgggtctggg aggagaatgt 1560
gccctggtgt caatttggct acttcaggaa tggcaacact tcttgcatct cttatccaat 1620
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ttagcatgga agagagagct ggcctcacag ttccaagggc acatagtctc gtttgtgttc 1740
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c 1801

<210> 53
<211> 1900
<212> DNA
<213> Glycine max

<220>
<221> intron
<222> (947)..(1082)

<400> 53
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aaaatcaaaa gcacttcgcc atctcccaaa cccaccaagc ccaaagcctc gtcttccctt 180
cataggacac cttcatctct taaaagacaa acttctccac tacgcactca tcgacctctc 240
caaaaaacat ggtcccttat tctctctcta ctttggctcc atgccaaccg ttgttgcctc 300
cacaccagaa ttgttcaagc tcttcctcca aacgcacgag gcaacttcct tcaacacaag 360
gttccaaacc tcagccataa gacgcctcac ctatgatagc tcagtggcca tggttccctt 420
cggaccttac tggaagttcg tgaggaagct catcatgaac gaccttccca acgccaccac 480
tgtaaacaag ttgaggcctt tgaggaccca acagacccgc aagttcctta gggttatggc 540
ccaaggcgca gaggcacaga agccccttga cttgaccgag gagcttctga aatggaccaa 600
cagcaccatc tccatgatga tgctcggcga ggctgaggag atcagagaca tcgctcgcga 660
ggttcttaag atctttggcg aatacagcct cactgacttc atctggccat tgaagcatct 720
caaggttgga aagtatgaga agaggatcga cgacatcttg aacaagttcg accctgtcgt 780

tgaaagggtc atcaagaagc gccgtgagat cgtgaggagg agaaagaacg gagaggttgt 840
tgagggtgag gtcagcgggg ttttccttga cactttgctt gaattcgctg aggatgagac 900
catggagatc aaaatcacca aggaccacat cgagggtctt gttgtcgtga gtttcctgct 960
tcattcattg atcgaaatat gcagtatttt gttaacaaga gatcgagaat tgacatttat 1020
atattcatgt ggtggcaatt aattaacggt acgcattctt aatcgatatt gtgtatgtgc 1080
aggacttttt ctcggcagga acagactcca cagcggtggc aacagagtgg gcattggcag 1140
aactcatcaa caatcctaag gtgttggaaa aggctcgtga ggaggtctac agtgttgtgg 1200
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aagtaggaag agaccccaaa tactgggaca gaccatcgga gttccgtcct gagaggttcc 1440
tagagacagg ggctgaaggg gaagcagggc ctcttgatct taggggacaa cattttcaac 1500
ttctcccatt tgggtctggg aggagaatgt gccctggagt caatctggct acttcgggaa 1560
tggcaacact tcttgcatct cttattcagt gcttcgactt gcaagtgctg ggtccacaag 1620
gacagatatt gaagggtggt gacgccaaag ttagcatgga agagagagcc ggcctcactg 1680
ttccaagggc acatagtctt gtctgtgttc cacttgcaag gatcggcgtt gcatctaaac 1740
tcctttctta attaagatca tcgtcatcat catcatatat aatatttact ttttgtgtgt 1800
tgataatcat catttcaata aggtctcgtt catctacttt ttatgaagta tataagccct 1860
tccatgcaca ttgtatcatc tcccatttgt cttcgtttgc 1900

<210> 54
<211> 1501
<212> DNA
<213> Lupinus albus

<400> 54
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aacttctcca ctacgcactc atcgacctct ccaaaaaaca tggtcccttа ttctctctct 180
actttggctc catgccaacc gttgttgcct ccacaccaga attgttcaag ctcttcctcc 240
aaacgcacga ggcaacttcc ttcaacacaa ggttccaaac ctcagccata agacgcctca 300
cctatgatag ctcagtggcc agggttccct tcggacctta ctggaagttc gtgaggaagc 360
tcatcatgaa cgaccttctt aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc 420
aacagatccg caagttcctt agggttatgg cccaaggcgc agaggcacag aagccccttg 480
acttgaccga ggagcttctg aaatggacca acagcaccat ctccatgatg atgctcggcg 540
aggctgagga gatcagagac atcgctcgcg aggttcttaa gatctttggc gaatacagcc 600
tcactgactt catctggcca ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg 660
acgacatctt gaacaagttc gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga 720
tcgtgaggag gagaaagaac ggagaggttg ttgagggtga ggtcagcggg gttctccttg 780
acactttgct tgaattcgct gaggatgaga ccatggagat caaaatcacc aaggaccaca 840
tcaagggtct tgttgtcgac tttttctcgg caggaacaga ctccacagcg gtggcaacag 900
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gaaagtgcac agaagagtgt gagattaatg gatatgtgat cccagaggga gcattgattc 1140
tcttcaatgt atggcaagta ggaagagacc ccaaatactg ggacagacca tcggagttcc 1200
gtcctgagag gttcctagag acagaggctg aaggggaagc aaggcctctt gatcttaggg 1260
gacaacattt tcaacttctc ccatttgggt ctgggaggag aatgtgccct ggagtcattc 1320
tggctacttc gggaatggca acacttcttg catctcttat tcagtgcttt gacttgcaag 1380
tgctgggtcc acaaggacag atattgaagg gtggtgacgc caaagttagc atggaagaga 1440
gagccggcct cactgttcca agggcacata gtcttgtctg tgttccactt gcaaggatcg 1500
g 1501

<210> 55
<211> 499
<212> PRT
<213> Lupinus albus

<400> 49
Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
1 5 10 15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
20 25 30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
35 40 45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
50 55 60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
65 70 75 80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
85 90 95

Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Arg Val Pro Phe Gly Pro
100 105 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
115 120 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
130 135 140

Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
145 150 155 160

Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
165 170 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
180 185 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
195 200 205

His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
210 215 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
225 230 235 240

Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly
245 250 255

Val Leu Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu
260 265 270

Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
275 280 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
290 295 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Arg Ala Arg Glu Glu Val
305 310 315 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
355 360 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
370 375 380

```
Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
385                 390                 395                 400

Pro Glu Arg Phe Leu Glu Thr Glu Ala Glu Gly Glu Ala Arg Pro Leu
                405                 410                 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
            420                 425                 430

Arg Met Cys Pro Gly Val Ile Leu Ala Thr Ser Gly Met Ala Thr Leu
        435                 440                 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
    450                 455                 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
465                 470                 475                 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
                485                 490                 495

Ala Arg Ile
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<210> 56
<211> 1501
<212> DNA
<213> Medicago sativa

<400> 56

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aacttctcca ctacgcactc atcgacctct ccaaaaaaca tggtccctta ttctctctct  180
actttggctc catgccaacc gttgttgcct ccacaccaga attgttcaag ctcttccttc  240
aaacgcacga ggcaacttcc ttcaacacaa ggttccaaac ctcagccata agacgcctca  300
cctatgatag ctcagtggcc atggctccct tcggacctta ctggaagttc gtgaggaagc  360
tcatcatgaa cgaccttctc aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc  420
aacagatccg caagttcctt agggttatgg cccaaggcgc agaggcacag aagccccttg  480
acttgaccga ggagcttctg aaatggacca acagcaccac ctccatgatg atgctcggcg  540
aggctgagga gatcagagac atcgcccgcg aggttcttaa gatctttggc gaatacagcc  600
tcactgactt catccggcca ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg  660
acgacatctt gaacaagttc gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga  720
tcgtgaggag gagaaagaac ggagaggttg ttgagggtga ggtcagcggg gttttccttg  780
acactttgct tgaattcgct gaggatgaga ccacggagat caaaatcacc aaggaccaca  840
tcaagggtct tgttgtcgac tttttctcgg caggaacaga ctccacagcg gtggcaacag  900
agtgggcatt ggcagaactc atcaacaatc ctaaggtgtt ggaaaaggct cgtgaggagg  960
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gaaagtgcac agaagagtgt gagattaatg gatatgtgat cccagaggga gcattgattc 1140
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gtcctgagag gttcctagag acaggggctg aaggggaagc aaggcctctt gatcttaggg 1260
gacaacattt tcaacttctc ccatttgggt ctgggaggag aatgtgccct ggagtcaatc 1320
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tgctgggtcc acaaggacag atattgaagg gtggtgacgc caaagttagc atggaagaga 1440
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<210> 57
<211> 499
<212> PRT
<213> Medicago sativa

<400> 57

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Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
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His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
20 25 30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
35 40 45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
50 55 60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
65 70 75 80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
85 90 95

Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Ala Pro Phe Gly Pro
100 105 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
115 120 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
130 135 140

Phe Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
145 150 155 160

Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Thr Ser Met Met
165 170 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
180 185 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Arg Pro Leu Lys
195 200 205

His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
210 215 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
225 230 235 240

Val Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly
245 250 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu
260 265 270

Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
275 280 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
290 295 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
305 310 315 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
325 330 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
340 345 350

Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
355 360 365

```
Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
    370                 375                 380

Gln Val Gly Arg Asp Ser Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
385                 390                 395                 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu
                405                 410                 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
            420                 425                 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
        435                 440                 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
    450                 455                 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
465                 470                 475                 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
                485                 490                 495

Ala Arg Ile
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<210> 58
<211> 1501
<212> DNA
<213> Medicago sativa

<400> 58

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aacttctcca ctacgcactc atcgacctct ccaaaaaaca tggtccctta ttctctctct  180
actttggctc catgccaacc gttgttgcct ccacaccaga attgttcaag ctcttcctcc  240
aaacgcacga ggcaacttcc ttcaacacaa ggttccaaac ctcagccata agacgcctca  300
cctatgatag ctcagtggcc atggttccct tcggacctta ctggaagttc gtgaggaagc  360
tcatcatgaa cgaccttctc aacgccacca ctgtaaacaa gttgaggcct ttgaggaccc  420
aacagatccg caagctcctt agggttatgg cccaaggcgc agaggcacag aagccccttg  480
acttgaccga ggagcttctg aaatggacca acagcaccat ctccatgatg atgctcggcg  540
aggctgagga gatcagagac atcgctcgcg aggttcttaa gatctttggc gaatacagcc  600
tcactgactt catctggcca ttgaagcatc tcaaggttgg aaagtatgag aagaggatcg  660
acgacatctt gaacaagttc gaccctgtcg ttgaaagagt catcaagaag cgccgtgaga  720
tcgtgaggag gagaaagaac ggagaggtta ttgagggtga ggtcagcggg gttttccttg  780
acactttgct tgaattcgct gaggatgaga ccacggagat caaaatcacc aaggaccaca  840
tcaagggtct tgttgtcgac tttttctcgg caggaacaga ctccacagcg gtggcaacag  900
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<210> 59
<211> 499
<212> PRT
<213> Medicago sativa

<400> 59

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Phe Leu His Leu Arg Pro Thr Pro Thr Ala Lys Ser Lys Ala Leu Arg
  1               5                  10                  15

His Leu Pro Asn Pro Pro Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly
            20                  25                  30

His Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp
        35                  40                  45

Leu Ser Lys Lys His Gly Pro Leu Phe Ser Leu Tyr Phe Gly Ser Met
    50                  55                  60

Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln
65                  70                  75                  80

Thr His Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile
                85                  90                  95

Arg Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro
            100                 105                 110

Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala
        115                 120                 125

Thr Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys
    130                 135                 140

Leu Leu Arg Val Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp
145                 150                 155                 160

Leu Thr Glu Glu Leu Leu Lys Trp Thr Asn Ser Thr Ile Ser Met Met
                165                 170                 175

Met Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu
            180                 185                 190

Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys
        195                 200                 205

His Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn
    210                 215                 220

Lys Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile
225                 230                 235                 240

Val Arg Arg Arg Lys Asn Gly Glu Val Ile Glu Gly Glu Val Ser Gly
                245                 250                 255

Val Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Thr Glu
            260                 265                 270

Ile Lys Ile Thr Lys Asp His Ile Lys Gly Leu Val Val Asp Phe Phe
        275                 280                 285

Ser Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala
    290                 295                 300

Glu Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val
305                 310                 315                 320

Tyr Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln
                325                 330                 335

Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His
            340                 345                 350
```

```
Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile
        355                 360                 365

Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn Val Trp
    370                 375                 380

Gln Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg
385                 390                 395                 400

Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu
                405                 410                 415

Asp Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg
            420                 425                 430

Arg Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Met Ala Thr Leu
        435                 440                 445

Leu Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln
    450                 455                 460

Gly Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg
465                 470                 475                 480

Ala Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu
                485                 490                 495

Ala Arg Ile
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<210> 60
<211> 1497
<212> DNA
<213> Beta vulgaris

<400> 60

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<210> 61
<211> 498

<212> PRT
<213> Beta vulgaris

<400> 61

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Leu His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Leu Ile Asp Leu
        35                  40                  45

Ser Lys Lys His Gly Pro Leu Phe Ser His Tyr Phe Gly Ser Met Pro
    50                  55                  60

Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Thr
65                  70                  75                  80

Asn Glu Ala Thr Ser Phe Asn Thr Arg Phe Gln Thr Ser Ala Ile Arg
                85                  90                  95

Arg Leu Thr Tyr Asp Ser Ser Val Ala Met Val Pro Phe Gly Pro Tyr
            100                 105                 110

Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr
        115                 120                 125

Thr Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Phe
    130                 135                 140

Leu Arg Ala Met Ala Gln Gly Ala Glu Ala Arg Lys Pro Leu Asp Leu
145                 150                 155                 160

Thr Glu Glu Leu Leu Lys Trp Ala Asn Ser Thr Ile Ser Met Met Met
                165                 170                 175

Leu Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys
            180                 185                 190

Ile Phe Gly Glu Tyr Ser Leu Thr Asp Phe Ile Trp Pro Leu Lys His
        195                 200                 205

Leu Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys
    210                 215                 220

Phe Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Glu Ile Val
225                 230                 235                 240

Arg Arg Arg Lys Asn Gly Glu Val Val Glu Gly Glu Val Ser Gly Val
                245                 250                 255

Phe Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Met Glu Ile
            260                 265                 270

Lys Ile Thr Lys Asp His Thr Lys Gly Leu Val Val Asp Phe Phe Ser
        275                 280                 285

Ala Gly Thr Asp Ser Thr Ala Val Ala Thr Glu Trp Ala Leu Ala Glu
    290                 295                 300

Leu Ile Asn Asn Pro Lys Val Leu Glu Lys Ala Arg Glu Glu Val Tyr
305                 310                 315                 320

Ser Val Val Gly Lys Asp Arg Leu Val Asp Glu Val Asp Thr Gln Asn
                325                 330                 335
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Leu Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro
340 345 350

Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu Glu Cys Glu Ile Asn
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Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Pro Phe Asn Val Trp Gln
370 375 380

Val Gly Arg Asp Pro Lys Tyr Trp Asp Arg Pro Ser Glu Phe Arg Pro
385 390 395 400

Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Arg Pro Leu Asp
405 410 415

Leu Arg Gly Gln His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Arg
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Met Cys Pro Gly Val Asn Leu Ala Thr Ser Gly Thr Ala Thr Leu Leu
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Ala Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly
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Gln Ile Leu Lys Gly Gly Asp Ala Lys Val Ser Met Glu Glu Arg Ala
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Gly Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala
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His Leu Arg Pro Thr Pro Xaa Ala Xaa Ser Lys Ala Leu Arg His Leu
            20                  25                  30

Pro Asn Pro Pro Ser Pro Xaa Pro Arg Leu Pro Phe Ile Gly His Xaa
        35                  40                  45

His Leu Leu Lys Asp Lys Leu Leu His Tyr Ala Xaa Ile Asp Leu Ser
    50                  55                  60

Lys Lys His Gly Pro Leu Phe Ser Xaa Xaa Phe Gly Ser Met Pro Thr
65                  70                  75                  80

Val Val Ala Ser Thr Pro Glu Leu Phe Lys Leu Phe Leu Gln Xaa Xaa
                85                  90                  95

Glu Ala Thr Ser Phe Xaa Thr Arg Phe Gln Thr Ser Ala Xaa Arg Xaa
            100                 105                 110

Leu Thr Tyr Asp Xaa Xaa Val Ala Xaa Xaa Pro Xaa Gly Pro Tyr Trp
        115                 120                 125

Xaa Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
    130                 135                 140

Val Asn Xaa Leu Arg Pro Leu Arg Thr Gln Gln Ile Arg Lys Xaa Leu
145                 150                 155                 160

Arg Xaa Met Ala Gln Xaa Ala Glu Ala Xaa Lys Pro Leu Asp Xaa Thr
                165                 170                 175

Glu Glu Leu Leu Lys Trp Xaa Asn Ser Thr Xaa Ser Met Met Xaa Leu
            180                 185                 190

Gly Glu Ala Glu Glu Ile Arg Asp Ile Ala Arg Glu Val Leu Lys Ile
        195                 200                 205

Xaa Gly Glu Tyr Ser Leu Thr Asp Phe Ile Xaa Pro Leu Lys Xaa Leu
    210                 215                 220
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Lys Val Gly Lys Tyr Glu Lys Arg Ile Asp Asp Ile Leu Asn Lys Phe
225 230 235 240

Asp Pro Val Val Glu Arg Val Ile Lys Lys Arg Arg Xaa Ile Val Arg
245 250 255

Arg Arg Xaa Asn Gly Glu Xaa Xaa Glu Gly Glu Xaa Ser Gly Val Xaa
260 265 270

Leu Asp Thr Leu Leu Glu Phe Ala Glu Asp Glu Thr Xaa Glu Ile Lys
275 280 285

Ile Thr Lys Xaa Xaa Ile Lys Gly Leu Val Val Asp Xaa Phe Ser Ala
290 295 300

Gly Xaa Asp Ser Thr Ala Xaa Xaa Thr Glu Trp Ala Leu Ala Glu Leu
305 310 315 320

Ile Asn Asn Pro Xaa Val Leu Xaa Xaa Ala Arg Glu Glu Xaa Tyr Ser
325 330 335

Val Val Gly Lys Asp Xaa Leu Val Asp Glu Val Asp Thr Gln Asn Leu
340 345 350

Pro Tyr Ile Arg Ala Ile Val Lys Glu Thr Phe Arg Met His Pro Pro
355 360 365

Leu Pro Val Val Lys Arg Lys Cys Xaa Glu Glu Cys Xaa Ile Asn Gly
370 375 380

Xaa Val Xaa Pro Glu Gly Ala Leu Xaa Xaa Phe Asn Val Trp Gln Val
385 390 395 400

Gly Xaa Asp Xaa Lys Tyr Trp Asp Arg Pro Ser Glu Xaa Arg Pro Glu
405 410 415

Arg Phe Leu Glu Thr Xaa Ala Glu Gly Glu Ala Xaa Xaa Leu Asp Leu
420 425 430

Arg Gly Xaa His Phe Gln Leu Leu Pro Phe Gly Ser Gly Arg Xaa Met
435 440 445

Cys Pro Gly Val Xaa Leu Ala Thr Ser Gly Xaa Ala Thr Leu Leu Ala
450 455 460

Ser Leu Ile Gln Cys Phe Asp Leu Gln Val Leu Gly Pro Gln Gly Gln
465 470 475 480

Ile Leu Lys Gly Xaa Asp Ala Lys Val Ser Met Glu Glu Arg Ala Gly
485 490 495

Leu Thr Val Pro Arg Ala His Ser Leu Val Cys Val Pro Leu Ala Arg
500 505 510

Ile Gly Val Ala Ser Lys Leu Leu Ser
515 520